

From the INTERNATIONAL SEARCHING AUTHORITY

PCTNOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

To:

MODIANO & ASSOCIATI
Attn. Modiano, Guido
Via Meravigli, 16
I-20123 Milano
ITALYDate of mailing
(day/month/year)

02/04/1998

Applicant's or agent's file reference

30510/GM/ch

FOR FURTHER ACTION

See paragraphs 1 and 4 below

International application No.

PCT/EP 97/06619

International filing date
(day/month/year)

27/11/1997

Applicant

URETEK S.R.L. et al.

- 1.
- ☒
- The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.**Where?** Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

- 2.
- ☐
- The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

- 3.
- ☐
- With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

- 4.
- Further action(s):**
- The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

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Authorized officer

Nuria Toribio Gonzalez

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|--|---|---|
| Applicant's or agent's file reference 30510/GM/ch | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/EP 97/06619 | International filing date (day/month/year) 27/11/1997 | (Earliest) Priority Date (day/month/year) 02/12/1996 |
| Applicant URETEK S.R.L. et al. | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (see Box I).

2. ☐ Unity of invention is lacking (see Box II).

3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing

☐ filed with the international application.

☐ furnished by the applicant separately from the international application.

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ Transcribed by this Authority

4. With regard to the title, ☒ the text is approved as submitted by the applicant

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is:

Figure No. 1 ☒ as suggested by the applicant.

☐ None of the figures.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

National Application No

PCT/EP 97/06619

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 E02D3/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
IPC 6 E02D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| X | US 3 878 686 A (HAGEMAN JOHN A ET AL) 22 April 1975 | 1-4,8 |
| Y | see the whole document --- | 5,7 |
| Y | DE 33 32 256 A (MUELLER BAUCHEMIE) 6 September 1984 cited in the application | 7 |
| A | see page 12, line 1 - page 13, line 6; figures 1-3 --- | 1-6,8 |
| Y | EP 0 264 998 A (BALLAST NEDAM GROEP NV) 27 April 1988 | 5 |
| A | see page 1, line 44 - page 3, line 52; figures 1-10 --- | 1-4,6-8 |
| A | US 4 744 700 A (ANDY ALBERT ET AL) 17 May 1988 see column 1, line 55 - column 5, line 34 --- -/-- | 1-3 |

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

26 March 1998

Date of mailing of the international search report

02/04/1998

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 97/06619

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| A | US 2 627 169 A (POULTER) 3 February 1953 see column 3, line 34 - column 10, line 50; figures 1-8 --- | 1-4 |
| A | US 4 567 708 A (HAEKKINEN VEIKKO) 4 February 1986 cited in the application see the whole document --- | 1,13,14 |
| A | US 5 306 104 A (WITHERSPOON W TOM) 26 April 1994 see the whole document --- | 11,13 |
| A | US 5 401 121 A (NAKASHIMA ET AL.) 28 March 1995 see column 4, line 39 - column 10, line 3; figures 1-13 ----- | 1,11-13 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 97/06619

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|----------------------------|---------------------|
| US 3878686 A | 22-04-75 | NONE | |
| DE 3332256 A | 06-09-84 | EP 0131678 A | 23-01-85 |
| EP 0264998 A | 27-04-88 | NL 8602512 A | 02-05-88 |
| | | NL 8700512 A | 02-05-88 |
| US 4744700 A | 17-05-88 | NONE | |
| US 2627169 A | 03-02-53 | NONE | |
| US 4567708 A | 04-02-86 | FI 823299 A | 28-03-84 |
| | | CA 1210605 A | 02-09-86 |
| | | SE 455616 B | 25-07-88 |
| | | SE 8305181 A | 28-03-84 |
| US 5306104 A | 26-04-94 | NONE | |
| US 5401121 A | 28-03-95 | JP 7003769 A | 06-01-95 |
| | | AU 4456193 A | 19-01-95 |
| | | CA 2103755 A | 23-12-94 |
| | | CN 1096838 A | 28-12-94 |
| | | DE 4329208 A | 05-01-95 |
| | | ES 2083907 A | 16-04-96 |
| | | FR 2706924 A | 30-12-94 |
| | | GB 2279382 A,B | 04-01-95 |
| | | IT 1272574 B | 23-06-97 |
| | | NL 9301465 A | 16-01-95 |
| | | SE 9302592 A | 23-12-94 |

Hungarian Patent
Office

NOVELTY SEARCH REPORT

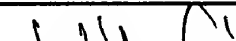
Application No. **P 0000359**

| Category | P C T | Identification data of relevant documents | Relevant to claim No. | Classification of the application IPC 6 |
|--|-------------|--|-----------------------|--|
| | * | The International Search Report No. PCT/EP9706619 (WO/9824982) | | E02D 312 |
| Y | | HU 212073 B The whole document | 1-14 | |
| A | | HU 203799 B | 1-14 | |
| Examined special field IPC 6 | | | | |
| Date: 10.. 02. 2003 | | Person performing the search: Mr. László Végh | | |
| <p>* from the PCT Search Report</p> <p>Categories of relevant documents:</p> <p>X: document comprising all the essential features of the examined solution</p> <p>Y: document comprising all the essential features of the examined solution in combination with one or two other documents</p> <p>A: document defining the state of art</p> | | <p>O: document referring to public use, exploitation, oral communication, exhibition or any other type of disclosure</p> <p>P: document published prior to the Hungarian filing date but later than the priority date claimed</p> <p>E: Hungarian patent or utility model specification having an earlier priority date and being published after the priority date of the examined application</p> | | |
| | | <p>D: document cited by applicant as belonging to the state of the art in the examined application</p> <p>&: document member of the same patent family (analogue)</p> | | |



A bejelentés ügyszáma: P0000359

| Kat. | P C T | A releváns iratok azonosító adatai | A vonatkozó igénypontok száma | A bejelentés osztályjelzete NSZO6 |
|------|-------------|---|-------------------------------------|---|
| Y | * | Lásd a mellékelt PCT/EP9706619(WO9824982) számú nemzetközi újdonságkutatási jelentés másolatát! | | E02D 3 12 |
| A | | HU 212073 B A teljes dokumentum. | 1-14, | |
| | | HU 203799 B | 1-14. | A vizsgált szakterület NSZO |

| | | |
|---|--|--|
| Dátum: 2003.02.10 | Ügyintéző:  | |
| <p>* PCT-újdonságkutatási jelentésből</p> <p>A releváns iratok kategóriái:</p> <p>X: olyan irat, amely a vizsgált megoldás valamennyi lényeges jellemzőjét tartalmazza</p> <p>Y: olyan irat, amely egy vagy két irattal kombinálva magában foglalja a vizsgált megoldás valamennyi lényeges jellemzőjét</p> <p>A: a technika állását meghatározó irat</p> | <p>O: olyan irat, amely nyilvános gyakorlatbavételre, használatra, szóbeli közlésre, kiállításra vagy más módon történő ismertetésre utal</p> <p>P: olyan irat, amely a magyar bejelentés napja előtt, de az igényelt elsőbbség napján vagy azt követően került nyilvánosságra</p> <p>E: olyan korábbi elsőbbségű magyar szabadalmi vagy használati mintaoltalmi leírás, amely a</p> | <p>vizsgált bejelentés elsőbbségi napját követően került nyilvánosságra</p> <p>D: olyan irat, amelyet a vizsgált megoldás leírásában a technika állásának ismertetésénél a bejelentő idéz</p> <p>&: azonos szabadalmi családba tartozó irat /analóg/</p> |

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PCT Chapter II

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19

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December 3, 1998

VIA TELEFAX

Our ref.: 30510/RI/rf

For the Attention of SCHARL, W.,
Examiner for the International Preliminary Examining
Authority

Re: International Application No. PCT/EP97/06619
filed on 27/11/1997

in the name of TRANSCENDENTAL MEDITATION FOUNDATION

This is in response to the First Written Opinion
pursuant to Article 34(2)(c) and Rule 66(2) PCT dated
07.09.98.

A hand-amended claims page 17, is hereby submitted
for replacement of the original page 17.

In particular the amendment regards the correction
of an obvious error in the language of claim 14.

No new matter has been added.

The Examiner's comments and objections and the
cited prior art documents have been carefully
considered.

It is noted that the subject-matter of claim 1 is
objected under Article 33(3) and Rule 65.1-2 PCT, for
lack of inventive step over the disclosure of the prior
document D1(DE-A-33 32 256) and in view of further
subject-matter available from the prior documents
D2(EP-A-0 264 998) and D3(US-A-4 567 708).

It is submitted that the Applicant is well aware of the disclosures of D1, which is in fact mentioned and discussed in the description as background art.

In the Applicant's opinion however, and for the reasons set forth hereinafter, D1 does not provide teachings so as to prompt the person skilled in the art to adapt the consolidation method described therein to arrive to a new method as defined by the terms of claim 1, under examination.

In fact, the teachings offered by D1 point the skilled person away from the applicant's inventive solution, as presently claimed.

Moreover, the teachings of D1 are incompatible with those of D2 and D3, therefore a combination between their teachings so as to lead to devising a method as that of claim 1, is impossible if not with modifications, not suggested by the prior art, and such as to involve inventive skills whereby to amount to an invention.

Arguments

From a careful consideration of the method disclosed by D1, it appears that the teaching cited by the Examiner (7-fache Verschäumungszahl), from page 8, line 12 of the document, appears casual.

For the purposes of the method, in claim 5 of D1, the volume increase is stated to be between 2 and 5 times the initial volume.

Thus, it appears to the person skilled in the art that the narrow range for the expansion coefficient, from 5 to 7, lacks technical significance and is not and combinable with the other features of the method disclosed as solving the technical problem put forth.

Accordingly the person skilled in the art would not consider such teaching in combination with other disclosed features of D1, in that there are clear indications that it cannot refer to and does not combine with any of the embodiments of the disclosed method.

It will be noted in this respect that there are three embodiments 1-3, described for the method of D1, at pages 8-9, of the A1 publication cited by the Examiner.

The first one refers to a rapid expansion, with a short reaction time, fostered by abundant water present into the soil in mountain areas.

However a rapid expansion at volumes more than 5 times the initial volume of the injected material clearly would induce a rapid increase of the pressure in the soil which is in contradiction with the very purpose of the method of D1.

Indeed, D1 appears to deal, unlike in the Applicant's claimed invention, with the problem of the consolidation of ground layers near the surface...by introducing foamable material into the ground where the material is foamed by mixing with the water present into the soil.

As stated at page 7, first paragraph, the water from the soil is drained and used for foaming the injected material. The process is consequently, intentionally slow and the volume increase of the foam is gradual.

The technical teaching of D1, teaching away from the method claimed in claim 1, is the slow increasing of the pressures into the soil, with the declared advantageous effect that the pressures are gradually transmitted laterally, at distances of more than 1 meter from the injection point.

It is also stated that such a gradual pressure transmission avoids the unwanted effect of the spontaneous creaks and fissures formation (spontane Spalten und Klüfte).

Therefore the feature, claimed by the applicant, as for the expansion coefficient being of "at least 5...", obtained by a very fast expansion-, in view also of the teachings of the description (see page 5, paragraphs 1, 2 and 4, with reference to preferred coefficients of 20-25 and up to 30-33, and reaction times of 3-4 seconds), is new over the features derivable from D1 which the person skilled in the art would be likely to combine in view of the technical prompting of such document. Therefore the only possibly overlapping features in D1 and claim 1 are those present in the preamble of claim 1.

Clearly supporting the above arguments is the fact that in the final, granted C2- version of D1, herein enclosed by the Applicant for purposes of argumentation, the "7-fachen" feature has been deleted from the text and replaced by the "5-fachen" upper limit (column 3, line 11) which thus appears the only one being consistent with the technical logic of the slow, gradual pressure

increasing motivated by the absolute requisite of avoiding fissures forming in the soil, as expressly stated by D1.

Furthermore, it will be noted that the original embodiment 1, regarding the fast reaction, has been also deleted, and only the embodiments with moderate and slow reaction times have been maintained, leaving thus the person skilled in the art with the clear message that the only valid option is the slow pressure increasing with expansion coefficients of up to 5.

As noted by the Examiner, D1 teaches no monitoring of the soil underlying a building for detecting raising thereof.

D2=EP-A-264 998 regards injection of expanding concrete material with an expansion coefficient (see description and values in the table) in the order of maximum 25%, mainly for manufacturing foundations, no specific teaching is given for lifting buildings by provoking fast expansion of the injected substance and **no constant**, in real-time, soil/building level monitoring is disclosed.

Raising of a building structure, is taught to be controlled at intervals for regulating the quantity of the material injected under the foundation.

It will be noted that the problem put forth by this documents is **different from that of D1** and regards foundations to be manufactured with expanding concrete combined with an additive. The expansion times and coefficients are necessarily long and comparatively small, with respect to the foaming materials of D1, according to the statements of the text, for avoiding cracks or bursting of the expanding mass.

Moreover, since the cementitious liquid used takes generally long times to settle into the ground, the injection pressure in the injection device is likely to be maintained until the solidification of the pumped fluid mass occurs, at least in part.

The same may be necessary in D1, where the foaming begins only if and when enough soil water is reached and drained from the ground.

In a building lifting process, as taught by D2, the amount of lifting is measured and compared with a set value. This cannot be defined as "constant monitoring" in the sense of the definition of the Applicant's claim 1, where the monitoring regards a permanent, in real time surveillance of the building and bearing soil "to detect the moment when the building and/or the soil surface,

overlying said injection zone, begins to raise which is the moment in which the compaction of the soil has reached levels generally higher than the required minimum value".

In contrast, in D2, no "moment" is revealed, but simply a distance is measured from time to time.

Last but not least, D3 deals with a still different problem, in that it regards levelling floors and slabs by injecting an expanding material in a space immediately beneath the sunken floor. No deep soil consolidation is dealt with.

The process is controlled, as in D2, by measuring from time to time the level of the floor.

Here, as in the other prior documents also, a preset quantity of substance is injected which is expected to produce a certain amount of raising (in D2 t, in D3 lcm). The real raising is measured, and thereafter, if necessary the injection is continued.

Neither in D2, nor in D3, is ever mentioned what happens if the effective swelling, for example due to an unexpected soil response, surpasses the expected lifting amount.

Thus even if these measuring methods are adopted, in combination with the method of D1, the fast and high expansion with constant monitoring of the lifting moment of the building, not to measure a distance but to pick up in real time a moment, as claimed in claim 1 cannot be achieved.

The advantages and originality of the method defined in claim 1, as compared to the teachings of the prior art, in particular D1, and the fact that prejudices of the known art, purposely teaching away from a too fast and strong expansion, are overcome, are explained in the description of the application, at pages 12-14.

Reference is made therein to comparative tests, illustrated by the diagrams of figures 6-8, which clearly show the focused and surprisingly efficient effect obtained with the method according to the applicant's claimed invention (effect obtained mainly vertically and not horizontally, at distances of more than 1m from the injection point, as taught by D1 at page 7, line 5), which inventively distinguishes from any method derivable by the skilled person from the teachings of D1, taken alone or in combination with D2 or D3.

Accordingly, claim 1, and the claims depending thereon, in the

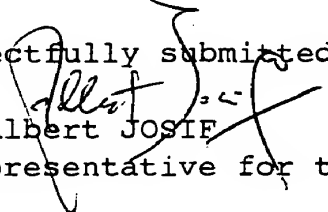
Applicant's opinion satisfy the requirements of Article 33(3) and Rule 65.1-2 PCT.

It is respectfully solicited that the submitted amendments and arguments are taken into account.

The applicant is hopeful that a favorable International Preliminary Examination Report will be established.

If further clarifications are deemed necessary by the Examiner, the applicant is willing to discuss the matter during an informal interview, under Rule 66.6.

Respectfully submitted,


Albert JOSIE

Professional Representative for the Applicant

Enclosures: Hand-amended claims page 14;
C2 publication of DE-33 32 256.

1 11. A method according to claim 1, wherein the
2 injection step comprises several active injection phases
3 alternated with suitable pauses.

1 12. A method according to one or more of the preceding
2 claims, wherein the injection substance is heated just
3 before the injection step.

1 13. A method according to claim 8, wherein the water
2 content is of 3.44%, by weight.

1 14. A method according to one or more of the preceding
2 claims, wherein ⁱⁿthe injection step, tubes (2) are used ✓
3 through which the expandable substance is injected into the
4 soil, the tubes having an inner diameter of about 10 mm.